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Reconnecting **Tenoroc** Wetland projects symbolize Peace plan Uppermost Peace River project one of first in habitat blueprint

LAKELAND -- No one can dispute that phosphate mining in the past wreaked havoc upon the upper Peace River watershed.

In a natural landscape in which streams once trickled their way from a series of swamps and lakes to the Peace River, strip mining created a labyrinth of pits, spoil piles and ditches. Some were filled in with sand or clay, some were not, and some of the pits now impound water in algae-choked ponds surrounded by nuisance vegetation.

The strip mining excavated so much of the Saddle Creek watershed that virtually no remnant of the creek or its natural flood plain exists today, according to the Florida Department of Environmental Protection. Saddle Creek had formerly connected the Peace River to its original source in the 600,000-acre Green Swamp.

Until recently, the **Tenoroc** Mine, one of several excavated between the 1950s and '70s in the Saddle Creek watershed, could serve as a prime example of those impacts.

But since the 6,040-acre mine was donated to the state in 1982 by Borden Chemical, the DEP and the Florida Fish and Wildlife Conservation Commission, with cooperation from the Division of Forestry, have been working to turn the site from a worst-case scenario into a model for successful wetlands restoration projects.

Several of the officials involved with the \$6 million reclamation project also say they hope it will serve as a symbol for the more holistic strategy they have in mind for preserving, or restoring, other segments of the impaired Peace River in the future.

"This is the bellwether project," said James "Bud" Cates, program administrator for the Environmental Resources Division of the DEP's mine reclamation bureau.

Cates collaborated with Tim King and Danon Moxley, both environmental project managers with the Florida Fish and Wildlife Conservation Commission, to establish the **Tenoroc** wetland reclamation project.

The need for a more environmentally focused reclamation strategy became apparent to Cates, a former Florida Fish and Game environmental specialist, shortly after he joined the DEP in 1984, he said.

He recalled that even the mining companies that were complying with Florida's reclamation regulations, which weren't adopted until 1975, were leaving behind a fragmented landscape. The reclamation resulted primarily in "small plots of trees and lakes scattered out in pastures." Often, those land forms had little connection to the Peace River system, he said.

"It didn't take long to feel like there was a lot of opportunity to do things better," Cates said. "I think Tim, Danon and I felt like habitat could be done better than that."

In the early 1990s, the three then worked together to draft a plan to re-establish the ecosystem for the upper Peace River. They also published a proposal called the Integrated Habitat Network.

The proposal maps flood plains and uplands that should be preserved in the Peace, Myakka and other river basins. The goal was to identify important segments of the ecosystem in order to sustain an interconnected wildlife habitat.

At first, other officials reacted to the proposal with a common refrain: "It'll never happen," Cates recalled.

But the IHN now serves as a blueprint for habitat protection. It is proving useful in negotiating mitigation with phosphate mining companies and urban developers. And it may soon help the DEP implement one of the actions listed in its Peace River Basin Resource Management Plan. That action calls for local and state agency leaders to establish a unified Peace River land-acquisition program, Cates said.

Perched at the top of the Peace River, the **Tenoroc** project will demonstrate what could also be accomplished in segments downstream, if all the stakeholders work together, he said.

"I think that has to happen," Cates said. "If you have unplanned growth and unplanned impacts at the north end of the basin, and the south end, and the middle, and you want a sustainable system, the only way you're going to be able to do that is to get all the parties together."

It will be a challenging, time-consuming task, if **Tenoroc** serves as the pilot project.

The **Tenoroc** site became public property in 1982, when Borden Chemical donated a 6,000-acre former mine. The state subsequently purchased another 341 acres located nearby from the American Cyanamid mining company and another 968-acre former mine that was proposed for the so-called Bridgewater development.

Since then, FWC has opened 24 pits as fishing lakes, created 10 miles of hiking trails, opened a shooting range and organized an annual alligator hunt.

In 1994, the state launched the project to reclaim some of the pits with manmade uplands, wetlands and meandering flow ways.

First, the staffers had to bushwhack all over the **Tenoroc** site in order to figure out which way the water drained, recalled Cates. Then, they hired engineers and hydrologists to design wetlands and connect them to the the Peace River watershed.

Finally, the state hired contractors to move the earth and revegetate the site's more than 100,000 plants.

"The upfront planning, getting an engineering firm under contract with all the state procedures, going through five different agencies to get a plan that everybody agreed to, that's what took a lot of time," said Cates. "Once we got that done, the actual construction moved fairly quickly."

The FWC secured \$5.5 million from the Department of Transportation to account for its impacts to wetlands for building the Polk Parkway, plus similar mitigation contributions for other projects.

"First, we had to recreate the plumbing," Moxley said. "Then on top of that, you put a habitat layer."

At **Tenoroc**, the project managers had an extra layer to contend with -- people. Moxley said the fact that the site is open for public recreational activities has also caused delays. More than 146,000 people have visited the area since 1993.

Despite those challenges, the project managers completed a first phase in 2005. That phase included the creation of two wetlands totaling some 40 acres of manmade wetlands on the

Bridgewater tract.

Maple, sweetgum and cypress trees planted in the wetlands two years ago on the site still appear to be slender saplings. But, the fact they're still alive after a year of drought is considered a success, according to Kevin Claridge, environmental administrator for the DEP's Homeland office.

At **Tenoroc's** other restoration site, an earth-moving contractor just completed an \$805,000 contract last summer and the Earth Balance firm is nearing completion of a \$339,000 contract to revegetate the site.

The agencies created a series of forested and herbaceous wetlands totaling 82 acres. They also created a sand-hill upland.

To accomplish that project, nuisance vegetation such as cogon grass had to be burned and removed. The surface was then cultivated and seedlings were planted. The sprouts now are serving as feed for quail, deer and other wildlife.

The goal is to mimic the natural habitat that existed before the mining, King said.

"If you look at old aerial photographs, you see isolated cypress heads, flatwoods with sand hills and sandy uplands," he said.

The site has yet to contribute much water to the Peace River, however. That is due in part to the drought and part to the fact that water from **Tenoroc** now drains through two lakes, Lake Parker and Lake Hancock, before it enters Saddle Creek.

The Southwest Florida Water Management District is working to implement another \$80 million project to increase the storage capacity of Lake Hancock. Once completed, Lake Hancock should store enough water to help the upper Peace River meet its minimum flow during dry seasons.

Such projects as **Tenoroc** and Lake Hancock are like "grapes on a vine," explained Cates. Each one is needed for the restoration of the upper Peace to come to fruition, he said.

At **Tenoroc**, a third phase is planned to restore a more natural hydrology to another 1,200 acres at the site. And more such projects will take place, if the taxpayers are willing.

One proposed DEP project calls for the state to acquire the Six Mile Creek flood plain from the Clear Springs Land Company as mitigation for its proposed development. Six Mile is another Peace tributary that was all but obliterated by past phosphate mining, according to DEP reports.

The original scale of the Peace River's ecosystem will never be replaced because of the extent of human activities, said Cates. But, he said he believes the quality of the ecosystem can be restored for segments to the way it was as long ago as the 1880s.

"You can never make it what it once was," Moxley said of **Tenoroc**. "But, we can make the hydrological function work so it is a contributor to the Peace River drainage basin."

Moxley said he isn't discouraged by the fact 10 years has passed since the **Tenoroc** project was launched.

"It's like an infant," he said of creating wetlands. "That land needs to be cared for. You've got to do things to it. Eventually, it will mature and function on its own. That's our goal."

Peace River habitat plan

The Florida Department of Environmental Protection's Integrated Habitat Network serves as a blueprint for areas that should be preserved to protect the Peace and Myakka rivers. For a link to the plan, go to www.dep.state.fl.us/water/mines/ihn/index.htm.

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